62-58-3-27/30

AUTHORS: Andreyeva, N. S., Iveronova, V. I., Kozarenko, T. D., Poroshin, K. T., Shibnev, V. A., Shutskever, N. Ye.

TITLE: Investigation of the Structure of Peptides Containing Glycine and l-Proline (Issledovaniye struktury peptidov, soderzhashchikh glitsin i l-prolin)

PERIODICAL: Izvestiya Akademii Nauk SSSR,Otdeleniye Khimicheskikh Nauk, 1958, Nr 3, pp. 376-377 (USSR)

ABSTRACT: The investigation of peptides containing amino acids is of importance for the investigations of the structure of proteins. The stereochemical rôle of pyrrolidine rings within the configuration of the polypeptide chain has not yet been sufficiently explained. In general it is assumed that the bends of the polypeptide chains are formed in such points,where residues of proline and oxyproline are present. At present structural investigations of the peptides and polypeptides of numerous amino acids are carried out. There have, however, only few works been published on the investigation of compounds containing amino acids. The aim of this work is the investigation of the above mentioned

Card 1/2

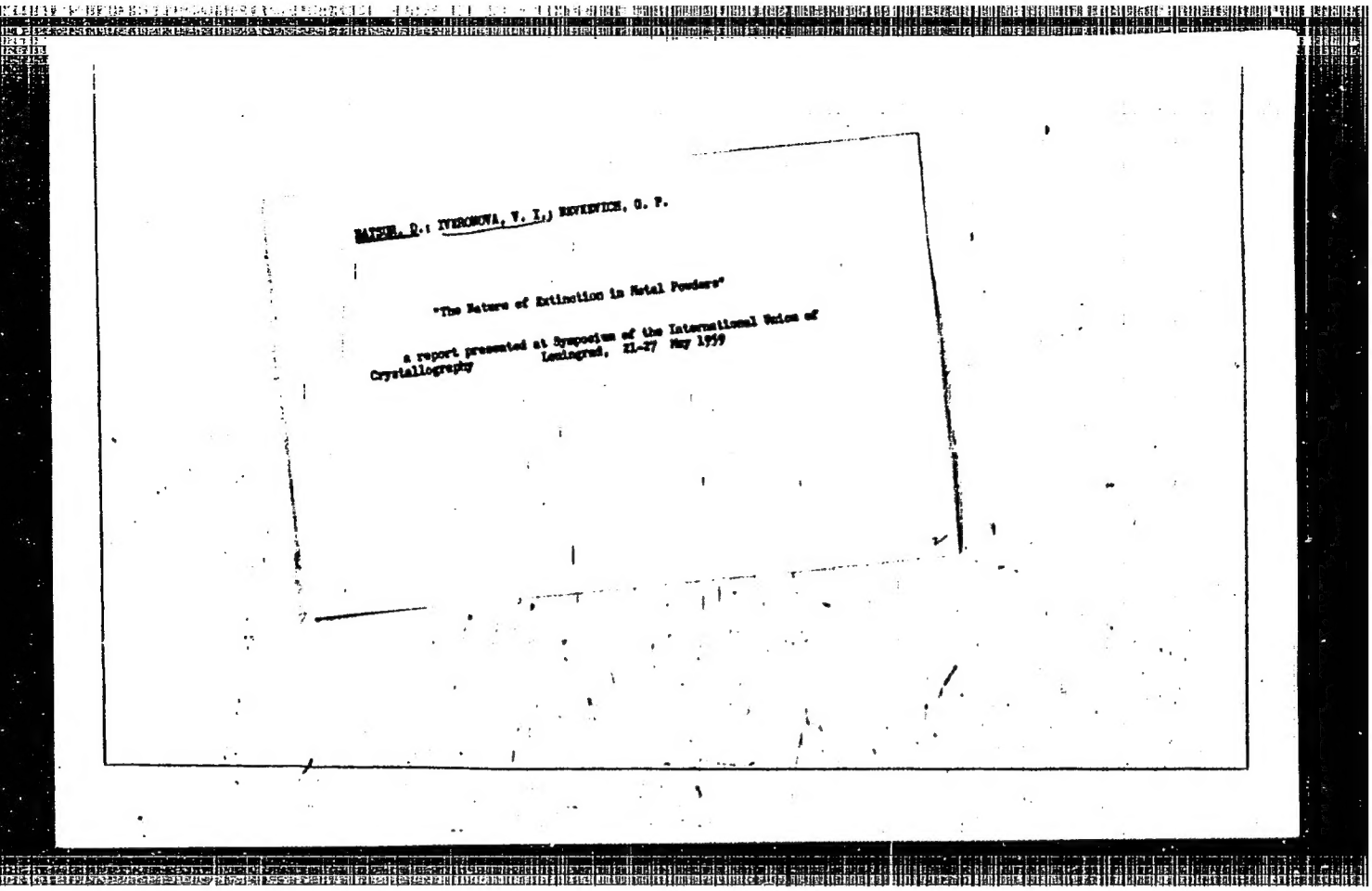
Investigation of the Structure of Peptides Containing Glycine and l-Proline 62-58-3-27/30

structure of peptides. Glycyl-l-prolyl, l-prolylglycine, carbobenzoxyglycyl-l-prolyl and the anhydride of glycyl-l-proline were synthetized. Furthermore the first stage of the x-ray analysis of the synthetized compounds was finished.
There are 1 table and 10 references, 1 of which is Soviet.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta i Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR
(Physics Department of Moscow State University and the Institute for Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

SUBMITTED: October 31, 1957

Card 2/2



AUTHOR: V. I. TYUMENOVA, V. I.; REVENKOV, G. P.

"The Nature of Extinction in Metal Powders"

a report presented at Symposium of the International Union of Crystallography Leningrad, 21-27 May 1959

SOV/70-4-1-4/26

AUTHORS: Iveronova, V. I. and Katsnel'son, A. A.

TITLE: Short-range Order and Characteristic Temperature of the Alloy Ni_3Pt (Blizhniy poryadok i kharakteristicheskaya temperatura splava Ni_3Pt)

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 1, pp 25-29 (USSR)

ABSTRACT: Parallel measurements of short-range order and characteristic temperature of the alloy Ni_3Pt have been made. It has been established that annealing for four hours at 700°C after plastic deformation leads to an increase in characteristic temperature and short-range order. It is proposed that changes in the characteristic temperature should not be connected only with changes in short-range order. A hypothesis on the influence of "the Cotterell atmosphere" in changing the characteristic temperature in certain alloys is enunciated. The polycrystalline Ni_3Pt specimens were prepared by melting in an h.f. furnace under argon. They were homogenised for 50 hours at 900°C. The concentration of 25.5 at.% Pt was found from the lattice dimensions. Plastic deformation was produced by coarse polishing

Card1/3

Short-range Order and Characteristic Temperature of the Alloy Ni_3Pt

and was followed by 1 and 20 hours at 700°C in a vacuum furnace. The diffuse scattering was measured with a URS-50I diffractometer with FeK_α radiation monochromatised in the reflected beam. The diffuse scattering is due to (a) scattering connected with correlation in the positions of atoms in the alloy (short-range order, segregation, etc.), (b) scattering due to atomic displacements because of differences in the atomic radii of the components, and (c) scattering from the overlapping of the tails of the lines due to lattice distortion on plastic deformation. These were separated because of their different angular dependences. Characteristic temperature was measured from powder photographs (Zr-filtered Mo radiation) taken at +20 to -160°C. For various treatments the results were:

Plastically deformed	$\alpha_1 = -0.06\pm0.02$,	$n_1^{PtNi}=9.5$,	$\Theta=315^\circ\pm15^\circ$
Annealed 700° 1 hour	-0.19 ± 0.01,	10.7,	$450^\circ\pm50^\circ$
" 700° 20 hours	-0.18 ± 0.01,	10.7,	$360^\circ\pm20^\circ$
Fully ordered	-0.33	12.0	-
Fully disordered	-	9.0	-

Short-range Order and Characteristic Temperature of the Alloy Ni_3Pt

Here α_1 is the short-range order parameters for the first sphere, n_1^{PtNi} is number of Ni atoms in the first sphere round a Pt atom. In the plastically deformed state Θ agrees within the experimental limits with

$$\left[\frac{3}{4} m_{Ni} + \frac{1}{4} m_{Pt}\right] \Theta^2 = \frac{3}{4} m_{Ni} \Theta_{Ni}^2 + \frac{1}{4} m_{Pt} \Theta_{Pt}^2,$$

where m_{Ni} and m_{Pt} are the atomic concentrations.

There are 1 figure, 1 table and 21 references, 13 of which are Soviet, 4 English and 4 international.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: July 10, 1958

SOV/70-4-2-12/36

AUTHORS: Batsur', D., Iveronova, V.I. and Revkevich, G.P.

TITLE: The Nature of Extinction in Metallic Powders (Priroda ekstinktsii v metallicheskikh poroshkakh)

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 2, pp 214-218 (USSR)

ABSTRACT: X-ray scattering curves from powdered Cu and Ni have been measured with an URS-50I diffractometer for Cu-radiation monochromatised by reflexion from pentaerithritol. These are compared with theoretical curves. It is concluded that in powders of Cu and Ni deformed and annealed below the recrystallisation temperature secondary extinction is observed. The coefficient of secondary extinction grows with increasing temperature of annealing which corresponds to decreasing the disorientation angle. The dimensions of the blocks here increases very little and primary extinction can be neglected. After high-temperature annealing (above the recrystallisation temperature which leads to a sharp growth of the grains) only primary extinction influences the intensities on the powder photograph and secondary extinction is negligible. The primary extinction is

Card1/3

The Nature of Extinction in Metallic Powders

readily detectable from the weakening of all lines, even those with high indices. This shows that in powder specimens blocks in the same grain screen each other and not blocks in different grains. The disorientation of blocks in one grain of the deformed metal is comparatively slight (a general fragmentation of 1-5°) but the number of blocks is large and hence there is secondary extinction. After recrystallisation the number of blocks in a grain has become small but the angles of rotation between them are large and this removes secondary extinction and produces primary. To determine the dimensions of the blocks from the intensities of the Debye lines it is necessary first to make certain what sort of extinction has weakened the intensities. Coincidence between the dimensions determined by the two methods (line broadening and intensity measurement) which are noted in the literature are only apparent and are caused by the irregular use of the formulae for the dependence of intensity on block size for specimens where the weakening of lines is due to the slight fragmentation of the initial grains.

SOV/70-4-2-12/36

The Nature of Extinction in Metallic Powders

There are 5 figures and 10 references, 4 of which are Soviet and 6 English

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova (Moscow State University imeni M.V. Lomonosov)

SUBMITTED: September 13, 1958

Card 3/3

SOV/48-23-5-12/31

24(3)
AUTHORS: Batsur', D., Iveronova, V. I., Revkevich, G. P.

TITLE: On the Problem of Tensions of the 3rd Kind (K voprosu o napryazheniyakh III roda)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1959, Vol 23, Nr 5, pp 591-600 (USSR)

ABSTRACT: N. N. Davidenkov has shown that strains (or tensions) of the 3rd arise by plastic deformation. In a series of non-Russian papers it is proven that in roentgenograms of plastically deformed metals an attenuation of the interference lines occurs, and a formula (1) is given, permitting the computation of this attenuation. Reference is then made to works carried out in the Forties, when it was proven that tensions of the 3rd kind occur with all deformations. An explanation is given next of two models of the state of plastically deformed metals 1) the dislocation is in the range of the grain boundaries of the texture. 2) the disordered dislocation is in the interior of the texture grains. The attenuation of the interference lines is in relation to the root mean square atom displacement. Mention is then made of conditions in experiments, in which the monochromatic radiation was applied and measurements for comparative purposes were made

Card 1/2

on standard samples. The results of intensity measurements at a temperature of 500° C are first given next. A strong increase in intensity is observed at the beginning of the thermal treatment. A formula is then given, by which the degree of deformation may be determined from the intensity of the lines. Ekstein's formula is given for the computation of the primary extinction (Ref 12), and Lang's formula for the secondary extinction (Ref 13). Measuring results are shown in diagrams, that were obtained from experiments made on nickel, copper and the alloy Cu-Sn (Figs 3 and 4), and the dispersion was investigated. The conclusive summary mentions the relations between mechanical characteristics and tensions of the 3rd kind. There are 4 figures, 2 tables, and 19 references, 11 of which are Soviet.

IVERONOVA, V. I. and KATSNELSON, A. A.

"Short Order and X-ray Debye Temperature of Ni_3Pt."

report presented at the Fifth International Congress of the International Union of Crystallography, Cambridge, UK, 15-24 Aug 1960

18.8100

77699
SOV/148-60-1-22/34

AUTHORS: Iveronova, V. I., Kassandrova, O. N., Rozantseva, Ye. G.

TITLE: Characteristic Temperature of Iron-Vanadium Alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, Nr 1, pp 133-135 (USSR)

ABSTRACT: The accuracy of the expression of interatomic bohd strength in terms of a characteristic temperature, computed according to the difference between the X-ray diffraction intensities at different temperatures, has been questioned by a number of investigators (Kristallografiya, Vol 22, 444, 1957; Izv. AN SSSR, Section of Physics, 20, 723, 1956; etc.). The reason for this was the appreciable dependence of diffraction intensities on preceeding treatments. Similarly, proportionality of modulus of elasticity to characteristic temperature during heat treatment was found to be qualitative rather than quantitative (Fizika metallov i metallovedeniye, Vol 4, 417, 1957). It became known

Card 1/3

Characteristic Temperature of Iron-Vanadium Alloys

77699
SOV/148-60-1-22/34

that the exponent in a temperature-factor expression actually depends not only on the maximum frequency of oscillations, related to moduli of elasticity, but also on the spectral distribtuion of thermal vibrations which is not considered to be a variable in the Debye-Waller equation. Thus, the authors determined the characteristic temperature of iron-vanadium alloys by the X-ray method and compared the found values with those determined earlier from the moduli of elasticity, in order to evaluate the extent to which the thermal-vibration spectrum changes with the change in the alloy composition. Similar earlier attempts produced contradictory results. The iron-base alloys with 6 to 28% V were machined into 1 mm cylinders, annealed under vacuum at 600° C for 1 hr, cooled off, and 7 X-ray diffraction photographs were taken from each cylinder at -150° C to 220° C. The computed characteristic temperatures, i.e., 475, 485 and 540° C for the α-phase containing 6.1, 17.2, and 28.8% V, respectively, proved to increase

Card 2/3

Characteristic Temperature of
Iron-Vanadium Alloys

77699
SOV/148-60-1-22/34

with the V content. Above 28.8% V the σ-phase appears, and its weak diffraction lines could already be seen on overexposed photographs. It seems that the frequency spectrum of iron-vanadium alloys is close to that of one-atom structures because of only a slight difference between the atomic weights of Fe and V. At the same time, the interatomic bond strength in the structure of iron-vanadium alloys is higher than that of pure iron. This conforms with the fact, established by N. S. Rysina and B. N. Finkel'shteyn, that the shear modulus of iron-vanadium alloys drops with temperature increase at a slower rate than of pure iron. There is 1 figure; 1 table; and 6 Soviet references.

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvenyy universitet)

SUBMITTED: September 16, 1958

Card 3/3

S/139/60/000/006/015/032
E032/E414

AUTHORS: Iveronova, V.I. and Zvyagina, A.P.

TITLE: Determination of the Characteristic (Debye) Temperature by X-Ray Methods

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, No.6, pp.105-108

TEXT: The X-ray method of determination of the Debye temperature of alloys is based on an application of the theory of X-ray scattering due to Debye. This theory incorporates the following two assumptions: 1) the solid behaves as an isotropic continuous medium as far as thermal vibrations are concerned and (2) all the deductions from the theory obtained for a monatomic substance automatically hold for a diatomic lattice. The present authors point out that both these assumptions are not strictly correct. In the majority of papers concerned with the X-ray measurement of Θ as a function of temperature, attempts are made to obtain information on the corresponding change in the interatomic forces. However, analysis of experimental data has led the present authors to the conclusion that the characteristic temperature Θ, as measured

Card 1/4

Determination of the Characteristic (Debye) Temperature by X-Ray Methods

by the X-ray method, cannot be a simple characteristic of the interatomic forces in the lattice of a solid solution. Among the points quoted in support of this conclusion are: 1) small changes (of the order of 1 or 2% at.) in the concentration of the second component give rise to large changes in Θ (20 to 30%) (V.A.Il'ina, V.K.Kritskaya, Ref.5); such a change in Θ cannot be due only to a change in the interatomic forces; 2) the characteristic temperature Θ is irreversibly dependent on the heat treatment to which the alloys have been subjected and is not uniquely determined by the short-range order parameter on the first coordination sphere; 3) V.A.Il'ina et al (Ref.7) pointed out an analogy between Θ and Young's modulus E in their dependence on heat treatment. Analysis of numerical data for $\Delta\Theta/\Theta$ and $\Delta E/E$ shows that the observed correspondence is only apparent. The debye theory predicts that $\Theta \sim \sqrt{E}$ so that $\Delta\Theta/\Theta = 1/2(\Delta E/E)$. Experimental data, on the other hand, show that Θ changes by

S/139/60/000/006/015/032
E032/E414

Determination of the Characteristic (Debye) Temperature by X-Ray Methods

20 to 30% while the corresponding change in E is less than 3 or 4%; 4) finally, V.I.Iveronova et al (Ref.8) and S.A.Nemnonov and Finkel'shteyn, L.D. (Ref.9) have shown that the measured values of Θ are smaller in the ordered than in the unordered state (in the case of Cu_3Au, Ni_3Fe, Fe_3Al). The present authors argue that the characteristic temperature Θ, as measured by X-ray methods, depends not only on the interatomic forces but also on other factors such as the spectrum of thermal lattice vibrations, the relation between the dynamic and static displacements, variation of the mean square static displacement u_{st}^2 with temperature etc. It is concluded that no definite conclusions can be made about changes in the interatomic forces in the lattice on the basis of the X-ray measurements of Θ alone. There are 1 figure and 15 references: 9 Soviet and 6 non-Soviet.

Card 3/4

S/139/60/000/006/015/032
E032/E414

Determination of the Characteristic (Debye) Temperature by X-Ray Methods

ASSOCIATION: Moskovskiy gosuniversitet imeni M.V.Lomonosov
(Moscow State University imeni M.V.Lomonosov)

SUBMITTED: July 11, 1960

Card 4/4

S/181/60/002/01/25/035
B008/B014

5.4700
24.7600

AUTHORS: Zvyagina, A. P., Iveronova, V. I.

TITLE: The Characteristic Temperature and the Spectrum of Thermal Lattice Vibrations

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 118-121

TEXT: As a model of a solid solution the authors took a simple cubic lattice consisting of two atoms with the masses m_1 and m_2 at a concentration of 50 at%. In an absolutely disordered state the solution was thought of as a monatomic cubic lattice with an effective atomic mass $m = \frac{m_1 + m_2}{2}$. The model of an ordered solution represents an NaCl-type lattice. The spectra indicated in Ref. 5 for lattices of this type were utilized for the purpose, and $\bar{u}^2$ (thermal lattice vibration frequency) was calculated for the disordered (Fig. 1) and ordered states (Fig. 2)

4

Card 1/3

at a mass ratio of $\frac{m_1}{m_2} = 3$. A quantitative comparison between theory and experiment was impossible since the solid solution that was experimentally studied differed from the calculated model in its lattice and stoichiometric composition. It was, however, established that the characteristic temperature θ_r, which was measured by the X-ray technique via $\bar{u}^2$, cannot be regarded as an energy index of the intermolecular interaction in the solid solution. $\bar{u}^2$ depends not only on the cutoff frequency (binding energy) but also on the shape of the thermal vibration spectrum of the lattice. The latter is determined by such factors as lattice type, distribution of atoms in the lattice (degree of orientation), mass ratio of the components, and difference in binding energy between the individual atomic pairs. A close relationship between the change in θ_r and the change in the binding energy can be established only in the simplest cases if the lattices have the same spectra, i.e., if the lattice type, the degree of orientation etc. do not change with varying concentration

The Characteristic Temperature and the Spectrum of Thermal Lattice Vibrations

S/181/60/002/01/25/035
B008/B014

and thermal treatment of the solid solutions. Similar considerations hold for the characteristic temperature which was determined from the dependence of the heat capacity upon the temperature. This is why the heat capacity depends on the entire vibration spectrum, and not only on its fundamental frequency (Ref. 2). There are 2 figures and 9 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: May 4, 1959

Card 3/3

24.7000

78101
SOV/70-5-1-10/30

AUTHORS: Iveronova, V. I., Katsnel'son, A. A.

TITLE: Short-Range Order and Characteristic Temperature of Ni_3Pt Determined According to the X-Ray Data

PERIODICAL: Kristallografiya, 1960, Vol 5, Nr 1, pp 71-73 (USSR)

ABSTRACT: Earlier studies by the authors and others have disclosed that short-range order parameter a_1, which characterizes the varying number of B atoms on the first sphere around an A atom, is not proportional to the characteristic temperature $\Theta_{X\text{-ray}}$, determined according to the X-ray data. $\Theta_{X\text{-ray}}$ proved to increase during the initial brief period of annealing of Ni-Pt alloys and then to drop, while a_1 having reached certain level remained constant in the course of further annealing even for 20 hr. The authors have now extended the study on the distribution of B atoms to the second sphere around A atoms and sought to

Card 1/7

Short-Range Order and Characteristic Temperature of Ni_3Pt Determined According to the X-Ray Data

78101
SOV/70-5-1-10/30

determine a_1 and a_2 as functions of the mean square of dynamic atomic displacements at varying temperatures and durations of annealing. Ni_3Pt was obtained in a high-frequency furnace, homogenized at 900°C for 50 hr, checked for composition measuring identity period, cut into plates of 16 x 20 x 2 mm, deformed plastically by rough grinding, annealed at 700°C to 1.050°C for 20 hr under vacuum better than 0.001 mm, and quenched in water to fix the achieved state. The X-ray diffraction photographs were taken at 20 and -160°C with Mo radiation; the computations were based on diffuse scattering data (Fig. 1) at glancing angles (ϑ) from 7 to 42°, within which two maxima corresponded to a_1 and a_2. The increase of annealing temperature from 700 to 1,050°C proved slowly to

Card 2/7

Short-Range Order and Characteristic Temperature of Ni_3Pt Determined According to the X-Ray Data

78101
SOV/70-5-1-10/30

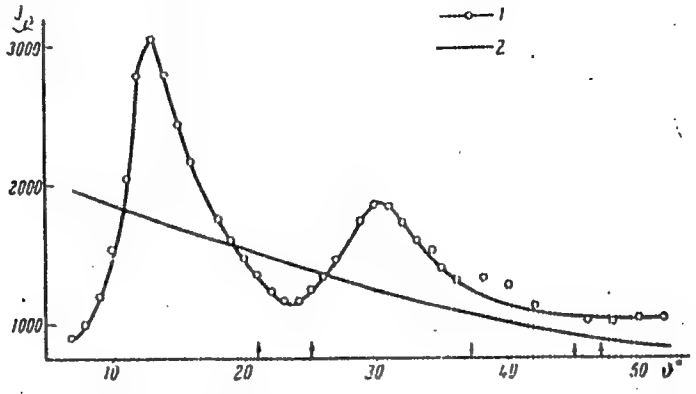


Fig. 1. Diffuse scattering by alloy Ni_3Pt annealed at 700° C for 20 hr: (1) experiment; (2) background scattering by disordered alloy.

Card 3/7

reduce a_1 and increase a_2. The improved order in the structure after annealing is more precisely defined by the sum $\Delta n_1^{PtNi} + \Delta n_2^{PtNi}$, the terms of which, respectively, denote the numbers of Ni atoms on the first and second spheres around Pt in excess of the respective numbers before annealing (disordered state). The first term reaches a maximum within an hour of annealing at 700° C and then remains constant, while the second term (a negative value) continues to rise even after 20 hr. Annealing at 1,000° C establishes the second term also at a maximum, pointing to the restoration of order and equilibrium in the deformed alloy within both spheres. The higher the temperature of annealing, the sum approaches zero in both cases. At lower temperatures the sum shows a sharp maximum at brief annealing.

This obviously is an effect of bond energy W_2^{NiPt} which forces Ni atoms to move from the third sphere and to concentrate on the second, while greater atomic mobility at a higher temperature provides for rapid motion of Ni atoms into the first sphere at the expense of the second, where consequently no Ni concentration takes place. The first term becomes sooner stabilized at a constant value since the constant in this case means the establishment of equilibrium between only two spheres, while the second term involves the equilibrium between first, second, and third spheres. The table below demonstrates that characteristic temperature $\theta_{X\text{-ray}}$ changes proportionally to the above sum. The sixth column shows mean squares of dynamic atomic displacements whose increase with the temperature and duration of annealing reduces the sum. Thus, a_1 cannot define characteristic temperature alone

Short-Range Order and Characteristic Temperature of Ni_3Pt Determined According to the X-Ray Data

78101
SOV/70-5-1-10/30

since both a_1 and a_2 affect it, while the sum $\triangle \underset{n_1}{PtNi} + \triangle \underset{n_2}{PtNi}$ defines it accurately. There are 4 figures; 1 table; and 12 references, 10 Soviet, 1 Danish, 1 U.S. The U.S. is: B. E. Warren, B. L. Aberbach, B. W. Roberts, J. Appl. Phys, 22, 1493-1496 (1951).

ASSOCIATION: Moscow State University imeni M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova)

SUBMITTED: July 2, 1959

Card 6/7

Short-Range Order and Characteristic Temperature of Ni_3Pt Determined According to the X-Ray Data

78101
SOV/70-5-1-10/30

Table

T, °C	t, hr.	Δn_1^{PtNi}	Δn_2^{PtNi}	$\Delta n_1^{PtNi} + \Delta n_2^{PtNi}$	u^2 (Å^2)	θ° K
700	20	1,4	—1,1	0,3	0,011	330
800	20	1,4	—1,1	0,3	—	—
900	20	1,3$_5$	—1,1$_5$	0,2	—	—
1050	20	1,1$_5$	—1,3	—0,1$_5$	0,016	270
deformed		0,6	—0,7	—0,1	0,014	280
700	1	1,4	—0,9	0,5	0,006	410
700	20	1,4	—1,1	0,3	0,011	330
700	50	1,4	—1,1	0,3	—	—

Card 7/7

IVERONOVA, V.I.; POPOVA, I.I.; REVKEVICH, G.P.

Effect of faults in the packing of layers on the intensity of Debye lines. Kristallografiia 5 no.4:530-534 Jl-Ag '60. (MIRA 13:9)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Brass--Spectra)

S/070/60/005/005/024/026/XX
E132/E160

AUTHORS: Iveronova, V.I., and Katsnel'son, A.A.

TITLE: The Methodology of Measuring the Intensity of the Diffuse Scattering from Polycrystalline Materials

PERIODICAL: Kristallografiya, 1960, Vol.5, No.5, pp.795-797

TEXT: Measurement of the diffuse scattering from powders is more difficult than from single crystals. A method must have three elements: a means for excluding the parasitic components of the background (white radiation, fluorescence, K_β lines, harmonics of the lines, scattering by materials other than the specimen); a means of measuring the background with at worst 2-3% error; the possibility of putting background intensity measurements on an absolute (electron units) scale. A technique has been worked out for measuring diffuse scattering using a УРС-50И (URS-50I) diffractometer without employing a vacuum camera. Radiation incident on the specimen is monochromatized by reflexion (002 plane) from a crystal of pentaerithritol where harmonics (004, 006 intensities) are very low. A counter with some discrimination against unwanted wavelengths is used. Specimens were pressed into a plate 18 x 14 x 2 mm without binder. Air scatter was reduced with a special collimating system

Card 1/2

S/070/60/005/005/024/026/XX
E132/E160

The Methodology of Measuring the Intensity of the Diffuse Scattering from Polycrystalline Materials

and the residual scatter could be estimated from tests without a specimen. Estimates of the efficiency of the general arrangement were made by working with and without collimator and with and without monochromator and measuring the ratio of line intensity to background intensity. A specimen of Ni_3Pt was studied with Fe radiation after checking the measured diffuse scattering from Ni with the theoretical values. The agreement is very satisfactory and confirms the accuracy and utility of the apparatus.
There are 3 figures and 7 references: 4 Soviet and 3 English.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova
(Moscow State University imeni M.V. Lomonosov)

SUBMITTED: March 13, 1960

Card 2/2

S/126/60/010/005/016/030
E193/E483

AUTHORS: Iveronova, V.I. and Osipenko, N.N.

TITLE: Recrystallization of Pure Metal Powders

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol.10, No.5, pp.736-742

TEXT: In many metallographic investigations, in which X-ray diffraction technique is used, specimens characterized by random distribution of crystals regarding their orientation have to be employed and this necessitates the use of powder specimens (filings). These are used either in the deformed or in the annealed condition. In the former case, it is usually assumed that the internal stresses in the powder particles are larger than those present in a massive specimen, even more heavily deformed. However, problems such as what is the structure of powder specimens produced by filing, to what degree they have been deformed, and what is their recrystallization temperature, have not been systematically studied, although there are indications that recovery processes can take place in filings even at room temperature and that their recrystallization temperature is higher than that of heavily deformed massive metal specimens. If accurate deductions,

Card 1/4

S/126/60/010/005/016/030
E193/E483

Recrystallization of Pure Metal Powders

regarding the structure of plastically deformed massive metal, are to be made from experimental results obtained on deformed powder particles, it is necessary to know the effect of room temperature ageing and high-temperature annealing on the properties of powder specimens. The object of the present investigation was to study the structural changes in copper and aluminium filings: (a) aged for various periods at room temperature in the case of copper and at 60 and 100°C in the case of aluminium, and (b) annealed for a given time at various temperatures. To avoid the effects of heat produced by friction, the experimental powder samples were prepared by slow filing. Four samples of each metal were prepared; samples a and b from fully annealed massive specimens, and samples c and d from heavily deformed specimens; each sample was separated into the fine (samples a and c) and coarse (samples b and d) fractions. After being subjected to various heat treatments, the powders were examined by X-ray diffraction. From the variation of the number of spots on the X-ray diffraction pattern, deductions were made

Card 2/4

S/126/60/010/005/016/030
E193/E483

Recrystallization of Pure Metal Powders

regarding the variation of the proportion of non-distorted crystals in the specimen and the temperature interval of the recrystallization process; the magnitude of the stresses of the second type, and the dimensions of the mosaic blocks in the specimens, were determined from broadening of the X-ray diffraction lines. The results indicated that in filings annealed even at comparatively low temperature (at room temperature in the case of copper), polygonization takes place, which leads to a decrease in the average size of the mosaic blocks, relief of the stresses of the second type and appearance of spots (due to reflections from undistorted crystals) on the X-ray pattern. This process takes place more readily in an isolated grain and is inhibited if slipping is hindered by forces exerted by the adjacent crystals; it was for this reason that the intensity of this process was higher in fine powder samples, prepared from annealed materials. Recrystallization proper begins in metal powders only at temperatures near or above 500°C. Even then, polygonization takes place in the initial stages of the process, as a result of

Card 3/4

GRAYEVSKAYA, Ya.I., IVERONOVA, V.I.; TARASOVA, V.P.

Effect of the concentration of tin in Cu-Sn solid solutions on the determination of characteristic temperature by X ray. Vest.Mosk.un. Ser.3:Fiz.,astron. 15 no.4:52-58 '60. (MIRA 13:9)

1. Kafedra obshchey fiziki dlya fizikov Moskovskogo universiteta.
(Copper-tin alloys--Thermal properties)
(Heat capacity)

KRYLOV, Ya.; IVERONOVA, V.I.

Plastic deformation of germanium single crystals (by insertion of a spike). Kristallografiia 6 no.5:784-786 S-O '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Deformations (Mechanics)) (Germanium crystals)

S/126/61/011/001/004/019
E032/E314

AUTHORS: Iveronova, V.I. and Katsnel'son, A.A.

TITLE: The Dimensional Effect in X-ray Diffraction by Polycrystalline Materials

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol. 11, No. 1, pp. 40 - 45

TEXT: Diffuse scattering by polycrystalline alloys, whose atoms are displaced from their ideal positions in the lattice, has been treated by Warren et al (Ref. 1) and Gouska and Averbach (Ref. 2). However, these authors assumed that the magnitude of the displacements depends only on the type of the atoms under consideration and not on the type of their nearest neighbours. Krivoglaz (Ref. 3) has also treated this problem without the introduction of the above restrictions. However, the latter author was concerned only with the diffuse background in the neighbourhood of reflections. The present authors extend the theory of diffuse scattering by polycrystalline materials to any angles of reflection. The discussion is based on the formula:

Card 1/4

S/126/61/011/001/004/019
E032/E314

The Dimensional Effect in X-ray Diffraction by Polycrystalline Materials

$$I_M = Nc_A c_B \left[\sum_{l=0}^{\infty}\sum_{l=0}^{c_l} a_{ll}\cos\vec{k}\vec{R}_{ll}\right] e^{-2\pi_{cr}\left(\frac{\sin\theta}{\lambda}\right)^2} \left[f_B - f_A + \frac{a_g\overrightarrow{fhe}_{\vec{g}}}{|\vec{g}|}\right]^2, \quad (1)$$

which was derived by Krivoglaz in Ref. 4 for the case of diffuse scattering by a monocrystal and is free from the limitations introduced in Refs. 1 and 2. This formula consists of two parts, the first of which is due to the difference in the scattering power of the components of the alloy and their atomic radii and the second part represents scattering due to the displacement of the atoms from their positions in a perfect lattice, i.e. the so-called

Card 2/4

S/126/61/011/001/004/019
E032/E314

The Dimensional Effect in X-ray Diffraction by Polycrystalline Materials

dimensional effect. Expressions are derived for the intensities of diffusely scattered X-rays associated with the above two effects. The intensity associated with the first of these effects is found to be a quasiperiodic function of the angle of reflection and is in qualitative agreement with the results of Warren et al (Ref. 1). In the case of the second effect the intensity increases with angle. It is found that the positions of the maxima and minima in these distributions depend on the type of crystal lattice, the scattering power and radii of the atoms of the components of the alloy as well as on the magnitude of the short-range order parameters. There are 3 figures and 7 references: 3 Soviet and 3 non-Soviet.

Card 3/4

S/126/61/011/001/004/019
E032/E314

The Dimensional Effect ....

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (Moscow State University im. M.V. Lomonosov)

SUBMITTED: June 24, 1960

Card 4/4

UVERONOVA, V.I.; KATSNEL'SON, A.A.

Short-range order and physical properties of single-phase solid solutions (survey). Zav.lab. 27 no.11:1354-1361 '61.
(MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Solutions, Solid)

BELYANKIN, A.G.; MOTULEVICH, G.P.; CHETVERIKOVA, Ye.S.; YAKOVLEV, I.A.; IVERONOVA, V.I., prof., red.; KUZNETSOVA, Ye.B., red.; KRYUCHKOVA, V.N., tekhn. red.

[Laboratory manual on physics] Fizicheskii praktikum. Pod red. V.I.Ivernovoi. Moskva, Fizmatgiz, 1962. 956 p. (MIRA 16:5)

(Physics--Laboratory manuals)

IVERONOVA, V.I.; KATSNEL'SON, A.A.

Effect of preliminary treatment on the kinetics of short-range ordering. Issl.po zharopr.splav. 8:9-13 '62. (MIRA 16:6)
(Nickel-platinum alloys--Metallography)

IVERONOVA, V.I.; KATSNEL'SON, A.A.

Determination of the characteristic temperature based on the diffuse scattering of polycrystals. Kristallografiia 7 no.4: 616-618 Jl-Ag '62. (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Crystals--Thermal properties)

IVERONOVA, V.I.; KATSNEL'SON, A.A.

Effect of short range order on the hardness and characteristic temperature of Ni_3Pt. Fiz. met. i metalloved. 13 no.2:317-319 F '62. (MIRA 15:3)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Nickel-platinum alloys—Thermal properties)

IVERONOVA, V.I.; ZVYAGINA, A.P.; AYNBINDER, B.Yu.

Effect of the spectral line shape of thermal vibrations in a CaCl-type lattice on heat capacity, mean square shift of atoms from the state of equilibrium, and the speed of sound. Fiz. met. i metalloved. 14 no.1:141-144 Jl '62. (MIRA 15:7)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Crystal lattices) (Spectrum, Atomic)

S/048/62/026/003/002/015
B107/B102

AUTHORS: Zvyagina, A. P., and Iveronova, V. I.

TITLE: Spectrum of thermal vibrations and the characteristic temperature of a CsCl-type lattice

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 3, 1962, 340-344

TEXT: The mean square displacement of the atoms from equilibrium, is given by

$$\overline{u^2} = \frac{1}{6N^3}\int_0^{\nu_m} u^2(\nu)\,g(\nu)\,d\nu = \frac{A}{6N^3}\int_0^{\nu_m}\frac{1}{\nu}\left(\frac{1}{e^{h\nu/kT}-1}+\frac{1}{2}\right)g(\nu)\,d\nu,$$

where $g(\nu)d\nu$ is the number of frequencies in the interval between ν and $\nu+d\nu$, $g(\nu)$ is the distribution function of the frequencies, i.e. the spectrum of thermal vibrations, $2N^3$ is the number of atoms in the crystal, ν_m is the maximum frequency. According to Debye, $g(\nu) = c\nu^2$, but the real spectrum shows considerable deviations from Debye's parabolic law,

Card 1/4

especially for diatomic crystals. The spectrum of thermal vibrations was calculated for a CsCl-type body-centered cubic lattice by Montroll's method (Refs. 2, 3, see below). Central forces were assumed and interaction of atoms with the nearest and next nearest neighbors was taken into consideration. The spectrum is represented by expansion into Legendre polynomials:

$$g(\nu_m x) = a_0 + a_2 P_2(x) + a_4 P_4(x) + \ldots + a_{14} P_{14}(x),$$

where $x = \nu/\nu_m$, $0 \leqslant x \leqslant 1$. The coefficients a_{2k} are expressed in terms of the even moments of the distribution function

$\mu_{2k} = \frac{1}{6N^3} \int_0^{\nu_m} \nu^{2k} g(\nu) d\nu$. The moment μ_{2k} is calculated as the trace of the characteristic matrix raised to the k-th power. The matrix elements depend on the ratio of the four parameters

$$a = \frac{2\alpha_{11}}{3\pi^2 m_1 \nu_m^2}, \quad b = \frac{2\alpha_{12}}{3\pi^2 m_2 \nu_m^2}, \quad c = \frac{\beta_{11}}{\pi^2 m_1 \nu_m^2}, \quad d = \frac{\beta_{12}}{\pi^2 m_2 \nu_m^2},$$

where m_1 and m_2 are the masses of the two types of atoms; α_{ij} and β_{ij} are

the coefficients of quasielastic interaction of the i-th and j-th types of atoms in the first and second sphere of coordination, respectively. The even moments of the distribution function are given explicitely. For equal atomic masses (a = b), but different coefficients of quasielastic interaction, the shape of the spectrum is given by the parameters

$$\gamma = \frac{c}{a} = \frac{3\beta_{11}}{2\alpha_{12}} \text{ и } \delta = \frac{d}{a} = \frac{3\beta_{22}}{2\alpha_{12}},$$

which are within -0.2 and +0.2. Fig. 1 shows the spectra for $\gamma = -0.2$ and various δ values. Breaking off the series had a great effect and did not permit the spectra to be calculated for different atomic masses. The quantity $\overline{\Delta u^2} = \overline{u_R^2} - \overline{u_N^2}$ which can be determined experimentally was calculated from the spectra; $\overline{u_R^2}$ and $\overline{u_N^2}$ are the mean square displacement of the atoms at room temperature and at liquid-nitrogen temperature, respectively. Fig. 2 shows the dependence of $\overline{\Delta u^2}$ on δ at various γ values. The lower families of curves hold for

equal ratios of the binding parameters, but for an absolute value increased to 4/3 and 2, respectively. The authors thank B. Yu. Aynbinder for assistance. There are 2 figures. The two most important English-language references are: Ref. 2: E. W. Montroll, J. Chem. Phys., 11, 481 (1943); Ref. 3: E. W. Montroll, D. C. Peaslee, J. Chem. Phys., 12, 98 (1944).

ASSOCIATION: Moskovskiy gos. universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

Fig. 1: Spectra of thermal vibrations for CsCl-type lattices with the binding parameter $\gamma = -0.2$.

Fig. 2: Dependence of $\Delta \overline{u^2}$ on γ and δ.

S/185/63/008/002/009/012
D234/D308

AUTHORS: Iveronova, V. I. and Zvyagina, A. P.

TITLE: Phonon spectrum and some thermodynamical characteristics of CsCl type lattices

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 8, no. 2, 1963, 238-242

TEXT: The authors refer to a previous paper of theirs (FMM, v. 14, 141, 1962) and conclude that v/a_0 and other elastic constants can be used as direct characteristics of interactions of atoms, while C_v and Δ_u^{-2} cannot generally be so used within the limits of Debye's theory. An example connected with the computation of characteristic temperatures is given. The authors also indicate a graphical method for estimating the interaction parameters from the above quantities. There are 5 figures.

ASSOCIATION: Moskovskiy gosuniversitet im. M. V. Lomonosova (Moscow State University im. M. V. Lomonosov)

Card 1/1

L 12789-63 EWP(q) EWT(m)/BDS AFFTC/ASD JD

ACCESSION NR: AP3000785 S/0070/63/008/003/0463/0465

AUTHOR: Iveronova, V. I.; Katsnel'son, A. A.

TITLE: Diffuse and double Bragg scattering of polycrystalline copper

SOURCE: Kristallografiya, v. 8, no. 3, 1963, 463-465

TOPIC TAGS: scattering, Compton effect, thermal scattering, Cu, secondary extinction

ABSTRACT: Electrolytic copper in cakes of powder pressed at room temperature and pressure of 1-2 tons/Sq cm, in cakes pressed at 800C and pressure of 60 tons/Sq cm, and in sintered samples was used. The results show that scattering from powdered samples, after long heating at 800C, was due to thermal and Compton effects. For sintered samples and powder samples annealed at 400C, subsidiary treatment provided double Bragg scattering. The authors discovered a relation between double Bragg intergranular scattering and secondary extinction. They concluded that double scattering was missing in the pressed cakes because of development of crystal units in the grains, each grain becoming essentially a single crystal. The total number of units in the zone of scattering thus becomes small and conditions for double scattering disappear. In the sintered samples this situation does not arise, and double scattering is present. It is further concluded that diffuse scattering by

Card 1/2

L 12789-63

ACCESSION NR: AP3000785

dense polycrystals is appreciably disturbed by the structure. Orig. art. has: 3 figures.

ASSOCIATION: Moskovskiy gosudarstvenny"y universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 05Jul62	DATE ACQ: 21Jun63	ENCL: 00
SUB CODE: 00	NO REF SOV: 005	OTHER: 008

Card 2/2

S/126/63/015/002/015/033
E039/E420

AUTHORS: Vlasova, Ye.N., Iveronova, V.I.

TITLE: The diffuse scattering of X-ray beams and the real structure of equilibrium solid solutions

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.2, 1963, 254-259

TEXT: A study was carried out of the distribution of intensity of diffuse scattering of an X-ray beam in the reciprocal lattice of annealed Fe-Al alloy with 15 at.% Al. The analysis leads to the conclusion that the distribution of atoms of iron and aluminium at the nodes of the crystal lattice does not appear by chance. Two suggestions are made relating to the structure of a solid solution: (1) that there is an orderly arrangement of atoms and that the order is not less than in three spheres of coordination and (2) that the structure of the solid solution is a non-ordered matrix with a statistical distribution of concentrations of Al atoms in its zones. These zones have an ordered structure of the type Fe_3Al. Comparison of experimental data with the theoretical conclusions of Borie shows that the basic facts such as the displacement of the maximum near the even nodes of the

Card 1/2

superstructure at small angles, the invariable positions and intensity maxima for odd superstructure nodes etc can be explained by the distortion of the crystal lattice as a result of the large difference in size of the atoms of Al and Fe. The results are compared with diffuse scattering in the alloy Cu3Au. There are 3 figures.

ASSOCIATION: Institut pretsizionnykh splavov TsNIIChM
(Institute of Precision Alloys TsNIIChM)

SUBMITTED: July 17, 1962

S/057/63/033/001/014/017
B125/B186

AUTHORS: Iveronova, V. I., Kagan, A. S., and Nikolayeva, S. M.

TITLE: On the measurement of the relative intensities of X-ray photographs of samples with texture

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 33, no. 1, 1963, 115 - 117

TEXT: A general method is suggested for determining the relative intensities of the second orders of reflection in X-ray photographs of samples with textures. A method is sought of liminating any effect that a texture may exert on the relative intensity of second-order reflections. In this case, either the region of the pole figure that falls in the reflecting position must be uniform, i. e. the slit heights must be different for different orders of reflection so that $h_{hkl}/h_{2h2k2l} = \frac{1}{2}$, or it must be ensured beforehand that the intensity of reflection inside the slit height does not change in the first order. The angle factor in the formula for the theoretical intensity is to be calculated according to the formula $J \approx (1 + \cos^2 2\theta)/\sin 2\theta$. Different slit heights must be

Card 1/2

On the measurement of ...

used according to whether axial textures are photographed by the Bragg-Brentano or by the Debye method. The consideration of the nonuniform density of the normals occasions only a negligible error in determining intensity from the slit height. For calculating the error in photographing with the same slit heights the actual distribution of the normals must be known in each case. Differences $\Delta(J_{2n2k2l}/J_{nkl})$ lead throughout to noticeable statistical fluctuations having the order of magnitude of d/30. There are 2 figures.

ASSOCIATION: Nauchno-issledovatel'skiy konstruktorsko-tekhnologicheskiy institut podshipnikovoy promyshlennosti, Zagorsk (Scientific Research Design-technological Institute of the Bearing Industry, Zagorsk)

SUBMITTED: February 12, 1962(initially)
April 9, 1962 (after revision)

Card 2/2

IVERONOVA, V.I., prof., red.; GRABOVSKIY, M.A., dots., red.; KONONKOV, A.F., kand. fiz.-mate. nauk, red.; MALOV, N.N., prof., red.; TELESNIN, R.V., prof., red.; USAGIN, S.I., st. prepod., red.; YAKOVLEV, K.P., prof., red.; YAKOVLEV, I.A., prof., red.

[Methodology and technique of lecture demonstrations in physics; transactions] Metodika i tekhnika lektsionnykh demonstratsii po fizike; sbornik trudov. Moskva, Izd-vo Mosk. univ., 1964. 280 p. (MIRA 17:5)

1. Mezhvuzovskaya konferentsiya po lektsionnym demonstratsiyam po kursu obshchey fiziki. 1st.

ACCESSION NR: AP4011744 S/0181/64/006/001/0101/0107

AUTHORS: Belov, K. P.; Iveronova, V. I.; Zaytseva, M. A.; Kadomtseva, A. M.; Katsnel'son, A. A.; Yatskul'yak, K.

TITLE: Magnetic and structural properties of lanthanum orthoferrite during partial replacement of Fe 3+ ions by other trivalent ions

SOURCE: Fizika tverdogo tela, v. 6, no. 1, 1964, 101-107

TOPIC TAGS: magnetic property, structural property, orthoferrite, lanthanum, lanthanum orthoferrite, Fe 3+, Al 3+, Sc 3+, Co 3+, thermoremanent magnetization, magnetization intensity, hysteresis loop, crystal lattice

ABSTRACT: In these studies the Fe^{+3} ion was replaced, in part, by Al^{+3}, Sc^{+3}, Cr^{+3}, and Co^{+3}. Thermoremanent magnetization of $LaFeO_3$ cannot be reduced to zero even in a field of 20 000 oersteds, but if Al^{+3} ions replace some of the Fe^{+3} ions ($LaFe_{0.9}Al_{0.1}O_3$), introduced by orthorhombic distortion of the crystal lattice, thermoremanent magnetization almost disappears, and the hysteresis loops become symmetrical. These changes may be explained by the finely dispersed character of the samples. The change in magnetic properties on substitution of the indicated ions

Card 1/2

ACCESSION NR: AP4011744

is associated with change in degree of dispersion and with the orthorhombic distortion of the lattice. Along with these changes, an increase was observed in magnetization intensity. This is explained by the ordered distribution of Al^{+3} ions in the crystal lattice. Orig. art. has: 3 figures.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 10Jul63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 002 OTHER: 002

Card 2/2

GLAGOLEVA, V.P.; IVERONOVA, V.I.; KASSANDROVA, O.N.

Effect of the K-state on the extent of the root-mean-square shifts of atoms in a Fe--Al alloy. Izv. vys. uchab. zav.; fiz. no.5:171-175 '64. (MIRA 17:11)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

GRABOVSKIY, Mikhail Aleksandrovich, dots.; MLODZEYEVSKIY, Anatoliy Boleslavovich, prof.; TELESHIN, Roman Vladimirovich, prof.; SHASKOL'SKAYA, Marianna Petrovna, dots.; YAKOVLEV, Ivan Alekseyevich, prof.; IVERONOVA, V.I., red.; CHEBOTAREVA, A.V., red.

[Lecture demonstrations in physics] Lektsionnye demonstratsii po fizike. Moskva, Nauka, 1965. 572 p.
(MIRA 18:9)

1. Institut stali i splavov Moskva (for Shaskol'skaya).

IVERONOVA, V.I.; OSIPENKO, N.N.

Low-temperature annealing of plastically deformed metals.
Fiz. met. i metalloved. 20 no.3:417-423 S '65.
(MIRA 18:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

L 15756-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b) JD/LHB

ACC NR: AP5027459 SOURCE CODE: UR/0032/65/031/011/1349/1352

AUTHOR: Iveronova, V. I.; Osipenko, N. N.

ORG: State University im. M. V. Lomonosov, Moscow (Moskovskiy gosudarstvennyy universitet)

TITLE: Determination of the size of mosaic blocks and microscopic lattice distortions from Debye lines with different indexes

SOURCE: Zavodskaya laboratoriya, v. 31, no. 11, 1965, 1349-1352

TOPIC TAGS: crystal lattice structure, elastic modulus, calculation, gaussian distribution, cauchy distribution, harmonic analysis

ABSTRACT: A method is proposed for determining the parameters of the fine structure (mosaic block size and the size of microscopic distortions) from X-ray interference lines with different indexes, taking into account the anisotropy of the modulus of elasticity. Two Debye lines (designated A and B) with different indexes were used. This can be done, by assuming that (1) the average size of the mosaic blocks (Д) does not depend on the indexes (hkl) in the direction studied, and (2) the stresses

1/3

UDC: 620.183.4.03

ACC NR: AP5027459

(σ) are the same in all directions:

$$\sigma = \left(\frac{\delta a}{a}\right)_{hkl} \cdot E_{hkl} = \text{const},$$

where $\delta a/a$ are microscopic distortions. This method is suggested for the analytical and graphic determination of the mosaic block size Д and the microscopic lattice distortions $\delta a/a$ by using the approximation method by Cauchy or Gauss. The Д and $\delta a/a$, during approximation by the Cauchy function, are related to the widening of the line according to the equation:

$$\beta \cos\theta = \frac{\lambda}{Д} + 4\frac{\delta a}{a}\sin\theta = \frac{\lambda}{Д} + 4\frac{\sigma}{E}\sin\theta,$$

which, in the diagram for graphic determination, is represented, at the constant E_{hkl}, as a straight line in the coordinates $\beta\cos\theta$ vs $\sin\theta$ λ. During the analytical solution of the problem, the values of Д and $\delta a/a$ are calculated directly in approximation by Cauchy from the formulas:

$$\frac{\lambda}{Д} = \frac{\beta_A \cos\theta_A \dfrac{\sin\theta_B}{\sin\theta_A} - \beta_B \cos\theta_B \dfrac{E_B}{E_A}}{\dfrac{\sin\theta_B}{\sin\theta_A} - \dfrac{E_B}{E_A}}$$

$$4\left(\frac{\delta a}{a}\right)_{h_A k_A l_A} \sin\theta_A = \frac{(\beta_B \cos\theta_B - \beta_A \cos\theta_A)\dfrac{E_B}{E_A}}{\dfrac{\sin\theta_B}{\sin\theta_A} - \dfrac{E_B}{E_A}}$$

L 15756-66

ACC NR: AP5027459

During calculations by the Gauss approximation, it is necessary to replace t... the expressions

$$\left|\frac{\lambda}{D}, 4\frac{\delta a}{a}, \beta\cos\theta, \beta\sin\theta\right|$$

and E in the above formulas with the expressions

$$\left|\left(\frac{\lambda}{D}\right)^2, 4\left(\frac{\delta a}{a}\right)^2, \beta^2\cos^2\theta, \beta^2\sin^2\theta\right|$$

and ξ^2, correspondingly. Those methods of calculation were checked experimentally with nickel, copper, and armco iron. Orig. art. has: 3 figures and 9 formulas.

SUB CODE: 20,12/ ORIG REF: 005/ OTH REF: 000

io

Card 3/3

L 46283-66 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW

ACC NR: AP6025327 SOURCE CODE: UR/0126/65/020/003/0417/0423

60
B

AUTHOR: Iveronova, V. I.; Osipenko, N. N.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosuniversitet)

TITLE: Low temperature annealing of plastically deformed metals

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 3, 1965, 417-423

TOPIC TAGS: plastic deformation, ~~metal heat treatment~~, copper, powder metal, low temperature effect, powder metal property, metal deformation, ANNEALING

ABSTRACT: The change of block structure by annealing at temperatures to 105C under isothermal conditions and/or by up to 6-month storage at room temperature was studied with compact copper samples, deformed up to 82% by rolling. Low, prerecrystallization temperatures or storage cause a decrease and a subsequent increase in the size of structural microblocks with simultaneous changes in microhardness. The starting size of blocks, derived from x-ray interference measurements, is higher than after storage at low temperature, and some stability in block size, microhardness and microdeformations is reached after sufficient storage at room or slightly elevated temperature. Annealing times, required for minimum size of block structure, and time required for stabilization of block size and microhardness

Card 1/2 UDC: 621.785.3

ACC NR: AP7005827 SOURCE CODE: UR/0181/66/008/012/3459/3462

AUTHOR: Iveronova, V. I.; Tikhonov, A. N.; Zaikin, P. N.; Zvyagina, A. P.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Determination of the phonon spectrum of crystals from the specific heat

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3459-3462

TOPIC TAGS: phonon spectrum, distribution function, specific heat, crystal property, thermodynamic function, aluminum

ABSTRACT: By using an approximate relation between the frequency distribution function and the specific heat, the authors demonstrate that in the harmonic approximation it is possible to calculate the phonon spectrum of crystals from the specific heat and from other thermodynamic functions. The approximate frequency distribution function is obtained directly from the experimental data on the specific heat. The determination of the approximate distribution function is facilitated by the fact that, in the approximation considered, the phonon spectrum is a continuous and piecewise smooth function with a derivative having a finite number of discontinuities. The resultant approximation is a smooth function which carries a minimum of characteristic information (line structure) and satisfies the equation with a specified accuracy. By way of an example, the frequency distribution function of aluminum, obtained from the integral equation using experimental information on the specific heat of aluminum,

Card 1/2

ACC NR: AP7005827

is presented. It is noted in the conclusion that the method can be used without modification to determine the energy spectrum of any Bose system from its thermodynamic functions. Orig. art. has: 2 figures and 9 formulas.

SUB CODE: 20/ SUBM DATE: 03Jan66/ ORIG REF: 005/ OTH REF: 003

Card 2/2

IVERONOVA, V.I.; KATSNEL'SON, A.A.

Existence of a short-range order in Au--Pd alloys. Kristallografiia 9 no.4:557-558 '64. (MIRA 17:11)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

B.A. IVERSEN, K.

Acc -17

Demonstration of tumour cells in gastric secretion. K. Iversen and W. Kiaer (*Ugeskr. Laeg.*, 1951, 113, 358—361).—Gastric contents from 100 patients were studied cytologically. Tumour cells were found in samples from 10 out of 10 cases of gastric carcinoma, in which a satisfactory prep. was obtained. In 11 other cases, the prep. was unsatisfactory. No false-positive case was found.

S. S. B. GILDER.

ACC NR: AP6... SOURCE CODE: UR/0413/66/000/019/0031/0031

INVENTOR: Bliznyuk, N. K.; Kolomiyets, A. F.; Ivershina, L. P.

ORG: none

TITLE: Preparation of phosphonic ester chlorides. Class 12, No.186466

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 19, 1966, 31

TOPIC TAGS: phosphonic acid, ester, chloride, ~~acid~~ phosphinate, phosphorus ~~ch~~chloride, chlorinated organic compound, organic phosphorus compound

ABSTRACT: To broaden the raw material base for the preparation of phosphonic ester chlorides from monoalkyl phosphinates and a chlorinating agent, a mixture of phosphorus trichloride and chlorine is used as the chlorination agent.

[PS]

[WA-50; CBE No. 14]

SUB CODE: 07/ SUBM DATE: 04Sep64

Card 1/1 UDC: 547.26'118.07

Ivershina, Ye. M.

USSR/Diseases of Farm Animals. Diseases Caused by Helminths R

Abs Jour : Ref Zhur - Biol., No 19, 1958, No 88266

Author : Boyev S.N., Ivershina Ye.M.
Inst : Institute of Veterinary Medicine of the Kazakh Branch of the All-Union Academy of Agricultural Sciences imeni Lenin
Title : Spread and Dynamics of Ovine Hemo-Onchocercosis in Kazakhstan.

Orig Pub : Tr. In-ta vet. Kazakhsk. fil. VASKhNIL, 1957, 3, 404-416

Abstract : No abstract.

Card : 1/1

IVERSHINA, YE. N.

COUNTRY : USSR R
CATEGORY : Diseases of Farm Animals. Diseases Caused by Helminths
ABS. JOUR. : RZhBiol., No. 6 1959, No. 25995

AUTHOR : Boyev, S. N.; Iverahina, Ye. N.
INST. : Institute of Zoology, AS KazSSR
TITLE : On the Propagation and Dynamics of Intestinal Cestodiases of Cattle in Kazakhstan

ORIG. PUB. : Tr. In-ta zool. AN KazSSR, 1958, 9, 10-18

ABSTRACT : As a result of the study of veterinary statistical data, it was shown that the loss of cattle due to intestinal cestodiases was recorded during the last 16 years in 11 out of 16 oblasts of Kazakhstan. Intestinal cestodiases of sheep are recorded in all oblasts of Kazakhstan in all seasons of the year. In the majority of the oblasts of the Republic, the murrain of sheep from

CARD: 1/2

25

Osnovnyye printsipy planirovaniya I raspredeleniya dokhodov zheleznykh dorog SSR (Fundamental principles of planning and allocation of revenue of railroads in the USSR) Moskva, Transzheldorizdat, 1951.

156 p. diagrs., tables.

Bibliographical footnotes.

IVANIC, D.

Iron-sheet pipes. p. 137
(Tehnika, Vol. 11, no. 9, 1956. Beograd, Yugoslavia)

SO: Monthly List of East European Accessions. (NEAL) LC, Vol. 6, No. 7, July 1957. Uncl.

IV-1-3, 1.

Lubricants for marine engines. p. 345

NAFTA (Nafta) JUG vol. 7, no. 12, Dec. 1955

Yugoslavia

SO: [illegible] vol. 5, no. 10 Oct. 1956

IVIC, Josip, inz.

Results of the analyses of the submerged paints "Submarincolor" Unag. Brodogradnja 7 no.5:214-218 '56.

IVIC, Milenko, Dr.

Survey of antibiotics. Med. pregl. 7 no.1:59-69 1954.
(ANTIBIOTICS,)

*

PUTNIK, Milan Dr; IVIC, Milenko. Dr.

Role of bacterial flora in strangulation of ileus. Med.pregl. Novi Sad 7 no.6:456-461 1954.

1. Pokrajinska medicinsko-istrazivacka laboratorija, Novi Sad. Upravnik: Dr. Petar Svarc.
(INTESTINAL OBSTRUCTION, experimental, bacteriol.aspects)

GASPAROV, Antun; IVIC, Milenko

Protein fractions in the serum and exudate in exudative pleurisy. Srp arhiv lekar 82 no.2:181-189 F '54. (MEAL 3:7)

1. Interno odeljenje Vojne bolnice u Novom Sadu, nacelnik dr. Antun Gosparov Klinicka laboratorija Vojne bolnice u Novom Sadu, nacelnik dr. Strahinja Marinkov. (Rad Je Urednistvo primilo 2-X-1953 god.)

(BLOOD PROTEINS, in various dis.
*pleurisy, exudative)
(EXUDATES AND TRANSUDATES
*protein fractions in exudative pleurisy)
(PLEURISY
*exudative, protein fractions in blood & exudate)

IVIC III

DJUKIC, Nedeljko, dr.; IVIC, Milenko, dr.

Clarification of etiology and pathogenesis of biliary peritonitis without perforation. Srpski arh. celok. lek. 82 no.7-8:985-990 July-Aug 54.

1. Hirursko odeljenje Bojne bolnice u Novom Sadu, nacelnik: dr. Nedeljko Djukic; Patolosko-anatomsko odeljenje Vojne bolnice u Novom Sadu, sef: dr. Milenko Ivic.

(PERITONITIS
biliary, without perf., etiol. & pathogen.)

IVIC,M.

Insulinocytes A and diabetes. Acta med. iugosl. 13 no.4:433-441 '59.

1. Pokrajinska medicinska istrazivacka laboratorija u Novom Sadu.
(DIABETES MELLITUS pathol.)
(ISLANDS OF LANGERHANS pathol.)

IVIC, Milenko

Metabolic changes after removal of the insular system. Srpski arh. celok. lek. 88 no.2:141-147 F '60.

1. Pokrajinska medicinska istrazivacka laboratorija u Novom Sadu, Upravnik: dr. Petar Svarc.
(ISLANDS OF LANGERHANS physiol.)
(BLOOD SUGAR)

IVIC, Milenko

On the problem of the site of synthesis of glucagon. Srpski arh. celok. lek. 89 no.10:1149-1153 O '61.

1. Institut za medicinska istrazivanja u Novom Sadu V.d. direktora: dr Petar Svarc.

(GLUCAGON metab)

IVIC, M.

Contribution to the technic of selective staining of islands of Langerhans cells. Acta med. Iugosl. 19 no.1:83-86 '65.

1. Histoloski institut Medicinskog fakulteta u Nisu.

IVIC, Mujesira, visi grad. tehn. (Sarajevo, JNA 3)

Construction of residential houses in Sarajevo. Tehnika Jug 19 no.1:Suppl:Gradevinarstvo 18 no.1:41-49 Ja '64.

1. Direktor Fonda za stambenu izgradnju grada Sarajeva.

IVIC, Stepjan, inz., visi predavac

Profiles of the cadres in chemical industries. Glasnik hemicara BiH 11:85-96 '62.

1. Tehnoloski fakultet u Tuzli.

IVI[illegible]VIC, P.

"Motors of Fishing Boats; Correct Operation and Lubrication", p. 111, (PCR PO RIBOLOVSTVO, Vol. [illegible], No. 9/10, 1954, Zagreb, Yugoslavia)

SO: Monthly List of East European Accessions (EEAL), LC, Vol. 4, No. 3, March 1955, Uncl.

Ivi'e I., P.

Ivicevic, P. - Marine currents and their effect on fishing. p.35

SO: Monthly List of East European Accessions List (EEAL) LC, Vol 4, No. 11 November 1955, Uncl.

IVICIC, Ladislav, MUDr

Electrocardiogram of pneumonia in newborn and older infants.
Pediat. listy, Praha 9 no.5:265-266 Sept-Oct 54.

1. Z detskej kliniky LFSU v Kosiciach, prednosta Doc. MUDr. F.Demant
(PNEUMONIA, in infant and child
ECG)
(ELECTROCARDIOGRAPHY, in various diseases
pneumonia in inf. & child.)

SERCER, A.; PADOVAN, I.; KRMPOTIC, J.; KNEZEVIC, M.; BALOGH, M.; MILIC,N.; SIPUS, N.; DURIN, B.; LIPOZENCIC, M.; GUSIC, B.; SPAVENTI, S.; GOSPODNETIC, A.; PANSINI, M.; IVIC, Z.; MARINOVIC, F.; BASIC, M.; ORESKOVIC, M.; KNEZEVIC, S.; MARICIC, Z.

Medicine. Bul sc Youg 9 no.4/5:116-117 Ag-O '64.

EXCERPTA MEDICA Sec 15 Vol 12/11 Chest Dis. Nov 59

2703. IDIOPATHIC HAEMOSIDEROSIS OF THE LUNGS - Idiopatická hemosideróza pl'úc - Ivičić L. and Kraják J. Detsk. Klin. UK, Košice; Int. Klin. KU, Košice - LÉK.OBZ. 1958, 7/12 (732-738) Illus. 3

In the course of the last 10 yr., idiopathic haemosiderosis has been reported as an autonomous disease of childhood as well. It is found mostly in children aged 3-6 yr. in association with hypertension of the pulmonary circulation. In 4 cases an attempt was made to influence the condition by splenectomy, but this operation resulted in aggravation. The diagnostic symptoms are anaemia, recurrent pneumonia and splenomegaly, and a roentgen picture resembling that of miliary tb. An extensive description is given of a child aged 4 yr.; emphasis is laid on the crisis in the erythrocyte count and the Hb value. Once the condition is considered, the diagnosis is not very difficult. Cells containing iron can be demonstrated in the sputum and also in the fasting gastric juice or in bronchial smears. Occasionally the lung can be punctured, or an exploratory excision may be necessary. The differential diagnosis is mainly from pneumonia, disseminated bronchopneumonia and tb. The pathological mechanism is discussed and mention is made of the severe picture of the moment of the crisis, with coughing, dyspnoea and collapse. In the case described, the intra-vital diagnosis has been made on the basis of the presence of siderophagic cells in the bronchial smear. The possibility of administering ACTH is discussed, because splenectomy failed to improve this case also.

Schaich - Luisenheim (XV 8 10)

HUNGARY / Chemical Technology. Chemical Products and Their Application--Water Treatment. Sewage H-5

Abs Jour: Ref Zhur-Khimiya, No 3, 1959, 8714

Author : Bartha, I., Ivicsics, F.

Inst : Not given

Title : Purification of Drainage Waters from the Petroleum Refining Industry

Orig Pub: Hidrol. kozlony, 1958, 38, No 1, 68-77

Abstract: A review of methods for computing petroleum traps in accordance with Soviet and American practices. Nomograms are included. --M. Lapshin

Card 1/1

IVICSICS, Ferenc

"New methods for barrage control measurements" by Juraj Bolf, Zdenek Cermak, Ondrej Tavoda. Reviewed by Ferenc Ivicsics. Hidrologiai kozlony 40 no.3:252-253 Je '60.

IVICSICS, Ferenc

The Motova Reservoir. Vizugyi kozl no.2:237-240 '61.

IVICSICS , Ferenc

Sewage purification in fiberboard factories in Czechoslovakia. Hidrologiai kozlony 41 no.6:493 D'61

IVICSICS, Ferenc, okl.mernok

Construction of dams in Czechoslovaki during the past 15 years. Vizugyi kozl no.1:158-162 '62.

1. A Vizgazdalkodasi Tudomanyos Kutato Intezet tudomanyos munkatarsa.

IVICSICS, Lajos, dr., okleveles mernok, a muszaki tudomanyok kandidatusa, tudomanyos fomunkatars; IVICSICS, Ferenc, okleveles mernok, tudomanyos munkatars

Solving similarity problems of hydraulic constructions in connection with their structural model analysis. Vizugyi kozl no.2:268-276 '62.

1. Scientific Research Institute of Water Resources Development, Budapest.